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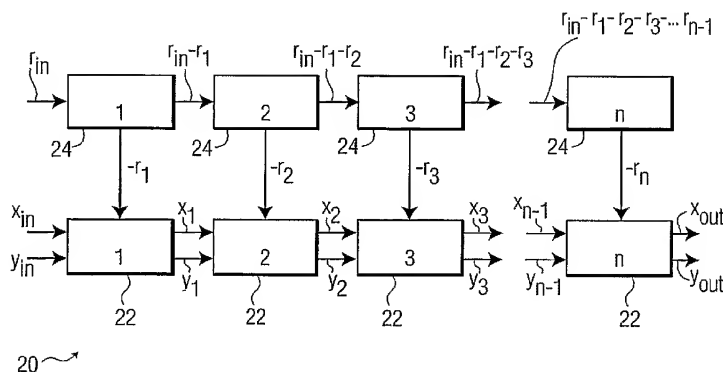
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— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS,

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(54) Title: IMPLEMENTATION OF THE CORDIC ALGORITHM FOR COMPLEX PHASE ROTATION



(57) Abstract: An improved implementation of the CORDIC algorithm that considers the n highest-order active bits in each stage of the CORDIC implementation resulting in increases in the precision of the final result by 2^n . The rotational angle increment $n-1$ possible magnitudes that can be either positive or negative. The rotational angle increment is selected using the sign bit, along with the $n-1$ highest order active bits, of the rotation angle and an adjusted rotation angle is obtained by discarding the n highest-order active bits, and sign-extending the result using a negative sign when the lowest-order of these n bits equals the sign bit of present-stage rotation angle and a positive sign when they are different (this is equivalent to an exclusive NOR, or XNOR, operation on these two bits). Finally, the tangent is selected from 2^n possible values (2^{n-1} magnitudes, each with 2 signs), such that it corresponds to the present-stage rotation angle. The use of this method results in a CORDIC implementation for which each stage increases the precision of the final result by a factor of 2^n , by considering n bits of the present-stage rotation angle. As a result, the number of stages needed, relative to the traditional implementation, is reduced by a factor of n .



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